

WHAT IS CLAIMED IS:

1. A method for recycling broke containing cellulosic fibers and a latex polymer, said method comprising mechanically treating the broke to form fiber aggregates, wherein said fiber aggregates have an average size of less than about
5 12 millimeters, and wherein a first portion of said fiber aggregates are coated with said latex polymer and a second portion of said fiber aggregates remain relatively free from said latex polymer.
2. A method as defined in claim 1, wherein said fiber aggregates have an average size of from about 0.5 to about 6 millimeters.
- 10 3. A method as defined in claim 1, wherein said fiber aggregates have an average size of from about 1 to about 4 millimeters.
4. A method as defined in claim 1, wherein said fiber aggregates have a Canadian Standard Freeness value of from about 400 to about 800.
- 15 5. A method as defined in claim 1, wherein said fiber aggregates have a Canadian Standard Freeness value of from about 600 to about 750.
6. A method as defined in claim 1, wherein said second portion constitutes 40% or more of the total area of said fiber aggregates.
7. A method as defined in claim 1, wherein said second portion constitutes 50% or more of the total area of said fiber aggregates.
- 20 8. A method as defined in claim 1, wherein said second portion constitutes 60% or more of the total area of said fiber aggregates.
9. A method as defined in claim 1, wherein said mechanical treatment comprises pulping said broke in a pulper.
- 25 10. A method as defined in claim 9, wherein said broke is diluted to a solids consistency of from about 4% to about 10% prior to said pulping.
11. A method as defined in claim 9, wherein said broke is diluted to a solids consistency of from about 6% to about 8% prior to said pulping.
12. A method as defined in claim 9, wherein said pulper is a rotor/stator type pulper.
- 30 13. A method as defined in claim 9, wherein said mechanical treatment further comprises refining said broke.
14. A method as defined in claim 1, wherein said broke is derived from a product that comprises a multi-layered paper web.

15. A method as defined 14, wherein at least one surface of said product contains said latex polymer in a spaced-apart pattern.

16. A method as defined in claim 15, wherein said latex polymer covers from about 10% to about 70% of said surface.

5 17. A method as defined in claim 15, wherein said latex polymer covers from about 25% to about 50% of said surface.

18. A method as defined in claim 15, wherein said surface is creped.

19. A method as defined in claim 1, wherein said latex polymer comprises from about 1% to about 60% by weight of said broke.

10 20. A method as defined in claim 1, wherein said latex polymer comprises from about 10% to about 40% by weight of said broke.

21. A method as defined in claim 1, further comprising using said fiber aggregates to form a paper product.

15 22. A method as defined in claim 21, wherein said paper product comprises a multi-layered paper web.

23. A method as defined in claim 22, wherein said fiber aggregates are incorporated into an inner layer of said multi-layered paper web.

24. A method as defined in claim 23, wherein said fiber aggregates constitute less than about 60% by weight of said inner layer.

20 25. A method as defined in claim 23, wherein said fiber aggregates constitute from about 10% to about 50% by weight of said inner layer.

26. A method as defined in claim 1, wherein said latex polymer is selected from the group consisting of styrene butadiene, neoprene, polyvinyl chloride, vinyl copolymers, polyamides, ethylene vinyl terpolymers, acrylates, methacrylates, and combinations thereof.

25 27. A method for recycling broke that contains cellulosic fibers and a latex polymer selected from the group consisting of styrene butadiene, neoprene, polyvinyl chloride, vinyl copolymers, polyamides, ethylene vinyl terpolymers, acrylates, methacrylates, and combinations thereof, said method comprising:

30 diluting the broke to a solids consistency of from about 4% to about 10%;
pulping said diluted broke; and

thereafter refining said broke, wherein said pulping and said refining result in fiber aggregates having an average size of from about 0.5 to about 6

millimeters, and wherein a first portion of said fiber aggregates are coated with said latex polymer and a second portion of said fiber aggregates remain relatively free from said latex polymer.

5 28. A method as defined in claim 27, wherein said fiber aggregates have an average size of from about 1 to about 4 millimeters.

 29. A method as defined in claim 27, wherein said second portion constitutes 40% or more of the total area of said fiber aggregates.

 30. A method as defined in claim 27, wherein said second portion constitutes 60% or more of the total area of said fiber aggregates.

10 31. A method as defined in claim 27, wherein said broke is diluted to a solids consistency of from about 6% to about 8% prior to said pulping.

 32. A method as defined in claim 27, wherein said broke is derived from a product comprising a multi-layered paper web, said product having a surface on which said latex polymer is disposed in a spaced-apart pattern.

15 33. A method as defined in claim 27, wherein said latex polymer comprises from about 1% to about 60% by weight of said broke.

 34. A method as defined in claim 27, wherein said latex polymer comprises from about 10% to about 40% by weight of said broke.

20 35. A method as defined in claim 27, further comprising using said fiber aggregates to form a paper product.

 36. A paper product comprising recycled broke that contains cellulosic fibers and a latex polymer, said recycled broke having an average size of less than about 12 millimeters, and wherein a first portion of said recycled broke is coated with said latex polymer and a second portion of said recycled broke remains
25 relatively free from said latex polymer.

 37. A paper product as defined in claim 36, wherein said recycled broke has an average size of from about 0.5 to about 6 millimeters.

 38. A paper product as defined in claim 36, wherein said recycled broke has an average size of from about 1 to about 4 millimeters.

30 39. A paper product as defined in claim 36, wherein said second portion constitutes 40% or more of the total area of said recycled broke.

 40. A paper product as defined in claim 36, wherein said second portion constitutes 50% or more of the total area of said recycled broke.

41. A paper product as defined in claim 36, wherein said second portion constitutes 60% or more of the total area of said recycled broke.

42. A paper product as defined in claim 36, wherein the paper product comprises a multi-layered paper web.

5 43. A paper product as defined in claim 42, wherein said recycled broke is incorporated into an inner layer of said multi-layered paper web.

44. A paper product as defined in claim 42, wherein said recycled broke constitutes less than about 60% by weight of said inner layer.

10 45. A paper product as defined in claim 42, wherein said recycled broke constitutes from about 10% to about 50% by weight of said inner layer.

46. A paper product as defined in claim 36, wherein said latex polymer is selected from the group consisting of styrene butadiene, neoprene, polyvinyl chloride, vinyl copolymers, polyamides, ethylene vinyl terpolymers, acrylates, methacrylates, and combinations thereof.

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